

SEQUENCE LISTING

<110> Lal et al.

<120> Recombinant Multivalent Malarial Vaccine Against Plasmodium Falciparum

<130> 6395-57049

<140>

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<150> PCT/US99/18869

<151> 1999-08-19

<150> US 60/097,703

<151> 1998-08-21

<160> 26

<170> PatentIn Ver. 2.0

<210> 1

<211> 1053

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: recombinant
dna/protein

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tct	tac	atc	tat	gcg	gat	cat	cat	cat	cat	cat	cat	aaa	cat	aaa	aaa	96
Ser	Tyr	Ile	Tyr	Ala	Asp	His	His	His	His	His	His	Lys	His	Lys	Lys	
			20				25						30			
tta	aag	caa	cca	ggg	gat	ggt	aat	cct	tgg	tcc	cca	tgt	agt	gta	act	144
Leu	Lys	Gln	Pro	Gly	Asp	Gly	Asn	Pro	Trp	Ser	Pro	Cys	Ser	Val	Thr	
		35					40					45				
tgt	gga	aaa	cct	aaa	gac	gaa	tta	gat	tat	gaa	aat	gat	att	gaa	aaa	192
Cys	Gly	Lys	Pro	Lys	Asp	Glu	Leu	Asp	Tyr	Glu	Asn	Asp	Ile	Glu	Lys	
	50					55					60					
aaa	att	tgt	aaa	atg	gaa	aaa	tgt	tcc	agt	gtg	ttt	aat	gtc	gta	aat	240
Lys	Ile	Cys	Lys	Met	Glu	Lys	Cys	Ser	Ser	Val	Phe	Asn	Val	Val	Asn	
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Ser	Asn	Ser	Gly	Cys	Phe	Arg	His	Leu	Asp	Glu	Arg	Glu	Glu	Cys	Lys	
			85					90						95		
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Cys	Leu	Leu	Glu	Asp	Ser	Gly	Ser	Asn	Gly	Lys	Lys	Ile	Thr	Cys	Glu		
			100					105					110				
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Cys	Thr	Lys	Pro	Asp	Ser	Lys	Pro	Ile	Val	Gln	Tyr	Asp	Asn	Phe	Asn		
		115					120					125					
gca	aac	cca	aac	gca	aac	ccc	aat	gca	aat	cct	gat	gga	aat	tgt	gaa	432	
Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asn	Ala	Asn	Pro	Asp	Gly	Asn	Cys	Glu		
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gat	ata	cca	cat	gta	aat	gaa	ttt	tca	gca	att	gat	ctt	gga	aat	gct	480	
Asp	Ile	Pro	His	Val	Asn	Glu	Phe	Ser	Ala	Ile	Asp	Leu	Gly	Asn	Ala		
145					150					155					160		
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Glu	Lys	Tyr	Asp	Lys	Met	Asp	Glu	Pro	Gln	His	Tyr	Gly	Lys	Ser	Leu		
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Thr	Pro	Leu	Glu	Glu	Leu	Tyr	Lys	Pro	Asn	Asp	Lys	Ser	Leu	Tyr	Gln		
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Tyr	Ile	Lys	Ala	Asn	Ser	Lys	Phe	Ile	Gly	Ile	Thr	Glu	Leu	Ser	Asn		
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aca	ttc	ata	aac	aat	gct	gga	caa	cat	gga	cat	atg	cat	ggg	aac	gag	672	
Thr	Phe	Ile	Asn	Asn	Ala	Gly	Gln	His	Gly	His	Met	His	Gly	Asn	Glu		
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agg	gaa	gat	gag	aga	acg	ctt	act	aag	gaa	tat	gaa	gat	att	gtt	ttg	720	
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Lys	Glu	Phe	Thr	Tyr	Met	Ile	Asn	Phe	Gly	Arg	Gly	Gln	Asn	Tyr	Trp		
			245						250					255			
gaa	cat	cca	tat	caa	aaa	agt	gat	caa	cct	aaa	caa	tat	gaa	caa	cat	816	
Glu	His	Pro	Tyr	Gln	Lys	Ser	Asp	Gln	Pro	Lys	Gln	Tyr	Glu	Gln	His		
			260					265					270				
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Leu	Thr	Asp	Tyr	Glu	Lys	Ile	Lys	Glu	Gly	Lys	Pro	Leu	Asp	Lys	Phe		
		275					280					285					
gga	aat	atc	tat	gat	tat	cac	tat	gag	cat	tct	agt	cca	tct	agt	aca	912	
Gly	Asn	Ile	Tyr	Asp	Tyr	His	Tyr	Glu	His	Ser	Ser	Pro	Ser	Ser	Thr		
	290					295					300						
aag	tca	tca	agt	cca	tca	aat	gta	aaa	tca	gct	agt	cta	gct	aca	aga	960	
Lys	Ser	Ser	Ser	Pro	Ser	Asn	Val	Lys	Ser	Ala	Ser	Leu	Ala	Thr	Arg		
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tta	atg	aaa	aaa	ttt	aaa	gct	gaa	atc	aga	gat	ttc	ttc	ggg	ata	agt	1008	
Leu	Met	Lys	Lys	Phe	Lys	Ala	Glu	Ile	Arg	Asp	Phe	Phe	Gly	Ile	Ser		
				325				330						335			
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 35 40 45

Cys Gly Lys Pro Lys Asp Glu Leu Asp Tyr Glu Asn Asp Ile Glu Lys
 50 55 60

Lys Ile Cys Lys Met Glu Lys Cys Ser Ser Val Phe Asn Val Val Asn
 65 70 75 80

Ser Asn Ser Gly Cys Phe Arg His Leu Asp Glu Arg Glu Glu Cys Lys
 85 90 95

Cys Leu Leu Glu Asp Ser Gly Ser Asn Gly Lys Lys Ile Thr Cys Glu
 100 105 110

Cys Thr Lys Pro Asp Ser Lys Pro Ile Val Gln Tyr Asp Asn Phe Asn
 115 120 125

Ala Asn Pro Asn Ala Asn Pro Asn Ala Asn Pro Asp Gly Asn Cys Glu
 130 135 140

Asp Ile Pro His Val Asn Glu Phe Ser Ala Ile Asp Leu Gly Asn Ala
 145 150 155 160

Glu Lys Tyr Asp Lys Met Asp Glu Pro Gln His Tyr Gly Lys Ser Leu
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Thr Pro Leu Glu Glu Leu Tyr Lys Pro Asn Asp Lys Ser Leu Tyr Gln
 180 185 190

Tyr Ile Lys Ala Asn Ser Lys Phe Ile Gly Ile Thr Glu Leu Ser Asn
 195 200 205

Thr Phe Ile Asn Asn Ala Gly Gln His Gly His Met His Gly Asn Glu
 210 215 220

Arg Glu Asp Glu Arg Thr Leu Thr Lys Glu Tyr Glu Asp Ile Val Leu
 225 230 235 240

Lys Glu Phe Thr Tyr Met Ile Asn Phe Gly Arg Gly Gln Asn Tyr Trp
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Glu His Pro Tyr Gln Lys Ser Asp Gln Pro Lys Gln Tyr Glu Gln His
 260 265 270

Leu Thr Asp Tyr Glu Lys Ile Lys Glu Gly Lys Pro Leu Asp Lys Phe

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Lys Ser Ser Ser Pro Ser Asn Val Lys Ser Ala Ser Leu Ala Thr Arg				
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Leu Met Lys Lys Phe Lys Ala Glu Ile Arg Asp Phe Phe Gly Ile Ser				
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Pro Asp Ser

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Val Leu Lys

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Phe

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<213> Honey bee

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Ser Tyr Ile Tyr Ala Asp
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<223> Description of Artificial Sequence: synthetic

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